

Remarks

Claims 1, 6, 7, 11, and 33 were cancelled. New claims 76-80 were added. Claims 2-5, 8-10, 12-32, and 34-75 have been withdrawn from consideration. Claims 76-80 are now presented for the Examiner's review and consideration. Applicants believe the amendments and accompanying remarks herein serve to clarify the present invention and are independent of patentability. No new matter has been added.

Amendments to the Specification

No new matter has been added by the amendment to paragraph [0014] made herein. This paragraph has been amended only to delete references to specific claim numbers.

No new matter has been added by the amendments to the abstract made herein. The abstract has been rewritten only with regard to compliance with MPEP § 608.01(b).

Amendments to the Claims

It is noted that references to the application/specification made herein are meant only to represent examples of support for amendments and/or teachings of the application/specification and are not and are not meant to be interpreted as a comprehensive list of support. The amendments and/or referenced subject matter may also be supported in other parts of the application/specification not mentioned.

No new matter has been added by the addition of independent claim 76. This claim recites the physical structure of the probability generating apparatus encompassed by cancelled claim 1 and the function of each structure in carrying out the generation of probability data. These descriptions/concepts are supported in the specification as originally filed. *See* abstract; paragraphs [0002]; [0014]; [0015]; [0102]; [0104]; [0112]; and [0189]-[0199] and Figures 1, 3, and 11 of the published application, U.S. Patent Application Publication 2004/02304061 A1; hereinafter "published application."

No new matter has been added by the addition of dependent claims 77-80. These claims

incorporate the subject matter of cancelled claims; claim 77 of cancelled claim 6; claim 78 of cancelled claim 7; claim 79 of cancelled claim 11; and claim 80 of cancelled claim 33. These claims have been rewritten for consistency of language; to correct inadvertent typographical errors; to correct inadvertent errors in grammar and/or punctuation; to provide proper antecedent basis for all terms recited; and/or to coincide with new independent claim 76.

Objections to the Specification

The specification was objected to because the abstract exceeds the maximum of 150 words in length permitted by of MPEP § 608.01(b).

In response, the abstract has been modified for compliance with the provisions of MPEP § 608.01(b).

In light of the above, Applicants respectfully request reconsideration and withdrawal of this objection to the specification.

Note on Cancellation of Claims and Addition of New Claims

Claims 1, 6, 7, 11, and 33 have been cancelled. New claims 76-80 correspond with the cancelled claims: new claim 76 with cancelled claim 1; new claim 77 with cancelled claim 6; new claim 78 with cancelled claim 7; new claim 79 with cancelled claim 11; and new claim 80 with cancelled claim 33. The rejections are addressed herein as if they had been applied to new claims 76-80.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1, 6, 7, 11, and 33 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Specifically, regarding claim 1 (new claim 76), the Examiner asserts that the limitations “the apparatus setting”, “the basis of random numbers”, “the data for generation of probability”, and “data(n)” lack antecedent basis; that the structure of the apparatus is unclear since only a

single step is recited; and that it is unclear exactly what is claimed because the claim merely recites using data (n) to generate probability without disclosing without disclosing the components and how the components generate the probability.

In response, it is noted that the above-referenced limitations have been removed from the claims. Claim 76 now includes proper antecedent basis for all of the terms/limitations recited therein.

The structure and function of the probability generating apparatus of the invention is clarified in Claim 76. Generally, the components of the apparatus include a parallel random number generator, a register, a counter, a shift register, a control circuit, and a comparator. *See* Figures 1, 3, and 11 of the published application. This claim also includes details regarding the functional interaction of the components in the generation of probability data. *See* paragraphs [0189]-[0199] of the published application.

Furthermore, regarding claim 6 (new claim 77), the Examiner asserts that the limitation “the above data” lacks antecedent basis.

In response, it is noted that the limitation referenced directly above has been removed from the claims. Claim 77 now includes proper antecedent basis for all of the terms/limitations recited therein.

Additionally, regarding claim 7 (new claim 78), the Examiner asserts that it is unclear as to what the limitation “that random number data” refers, the output of the random generator or the data in the process.

In response, it is noted that the random numbers being generated are referred to as “the random number data.” This random number data is output simultaneously with the output of the probability signal (PS) from the second comparator portion.

All issues under 35 U.S.C. §112, second paragraph have now been addressed. Accordingly, in light of all the foregoing arguments, Applicants respectfully request reconsideration and withdrawal of these rejections.

Rejection under 35 U.S.C. §101

Claims 1, 6, 7, 11, and 33 were rejected under 35 U.S.C. §101 because the claimed invention is allegedly directed to non-statutory subject matter. Specifically, the Examiner notes that the claims recite an apparatus for generating a probability signal in accordance with a mathematical algorithm. However, the Examiner asserts that the claims merely disclose a series of mental steps without disclosing a practical/physical application.

In response, Applicants point out that the claims, as currently pending, encompass an apparatus for generating probability. The apparatus includes the following physical components: a parallel random number generator, a register, a counter, a shift register, a control circuit, and a comparator. *See* Figures 1, 3, and 11 of the published application.

Thus, the claims now recite the physical structure of the apparatus (*i.e.* the above-listed components) and its practical application (*i.e.* generation of probability data).

In light of the foregoing, Applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. §101.

Rejection under 35 U.S.C. § 103(a)

Claims 1, 6, 7, 11, and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over G. Johnston Bradish et al. (U.S. Patent 5,830,064; hereinafter “Bradish”) in view of Ricard M. Mathis et al. (U.S. Patent 5,380,008; hereinafter “Mathis”).

For reasons set forth below Applicants respectfully submit that this rejection should be withdrawn.

Argument

As an initial matter, Applicants respectfully request that this rejection based on obviousness be re-assessed in light of the USPTO publication of “Examination Guidelines Update: Developments in the Obviousness Inquiry After KSR v. Teleflex,” **Fed Reg.** 75, pp53643-659 (Sept 1, 2010).

Applicants respectfully submit that the combination of the teachings of Bradish with the teachings of Mathis does not obviate the invention as currently claimed.

When generating probability data using the apparatus of independent claim 76, the data varies every time the trigger signal is generated and is indeterminate.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Therefore, in order for an Examiner to properly establish a *prima facie* case of obviousness, the Examiner first must show that all the elements of the claimed invention are known or suggested in the prior art.

The apparatus, as currently claimed, has features which can not be ascertained from the combination of the teachings of Bradish and Mathis.

According to the claimed probability generating apparatus, the data for generation of probability is the random number generated the time $t(n)$ after the time $t(0)$ when the trigger signal is generated. The data (n) varies every time the trigger signal is generated and (the data) is indeterminate. Therefore, it is virtually impossible to determine a timing for committing an unfair act such as an unfair external read of data. Thus, the claimed apparatus offers sufficient unexpectedness and unfair act prevention. See paragraph [0145] of the published application.

Further, the random number corresponding to the time $t(0)$ when the trigger signal is generated, data (n) composed of some bits (for example, lower 8 bits) and data (k) composed of some bits (for example, upper 5 bits) are used to rotate (shift) the n -th random number from the one corresponding to the time $t(0)$ which number corresponds to the time $t(n)$ when the trigger signal is generated on the basis of the data (k) . Thus, data for generation of probability is obtained. See paragraph [0196] of the published application.

The control circuit uses predetermined bits of the set data (k) in the register to determine the direction and speed of the data rotation. The control circuit uses the timing $t(n)$ to control the shift direction and number of the random data number sets in the shift register. In this connection, for example, the right shift/left shift operation of the shift register is set depending upon the state (1 or 0) of the most or otherwise least significant bit of the data (k) . Thus, shift

number is set on the basis of the number of remaining bits in the data (k). See paragraphs [0197] and [0198] of the published application.

Additionally, uniform random numbers remain uniform even after the data has been rotated (shifted). This further enhances the unexpectedness and the unfair-act prevention function. See paragraph [0199] of the published application.

In contrast, the apparatuses of the prior art (as disclosed by Bradish and Mathis) use a random number corresponding to a timing for generation of a trigger signal to serve as data for generation of probability. This arrangement allows users to unfairly determine the timing easily.

Based upon the above-discussed aspect of the cited references (Bradish and Mathis) as compared to the invention currently claimed, it is clear that the elements of the claimed probability generating apparatus are not equivalent to the elements of known probability generating apparatuses.

Accordingly, Applicants respectfully submit that the Examiner has failed to provide a convincing showing that all of the elements of the probability generating apparatus, as currently claimed, are taught/disclosed in the prior art.

Considering that all of the elements of the probability generating apparatus are not found in the cited art (Bradish and Mathis) combination of this cited art would not produce the claimed probability generating apparatus. Even if the cited references (Bradish and Mathis) were combinable to produce the probability generating apparatus as currently claimed, a simple teaching of elements is insufficient. In order to establish *prima facie* obviousness, the prior art must suggest the desirability of the claimed invention and/or give some reason why one of ordinary skill in the art would think to combine the references.

"Obviousness can be established by combining or modifying teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so." In re Kahn, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006); MPEP 2143.01 I.

"The question under 35 U.S.C. 103 is not merely what the references expressly teach but

what they would have suggested to one of ordinary skill in the art at the time that the invention was made.” In re Lamberti, 545 F.2d at 750, 192 USPQ at 280 CCPA 1976.

Therefore, in order for an Examiner to properly establish a *prima facie* case of obviousness, the Examiner must not only show that all elements of the claimed invention are known or suggested in the prior art, but must also show that one of ordinary skill in the art would have some reason or motivation to put all the elements together to achieve the claimed invention.

In the apparatuses disclosed in the cited art (Bradish and Mathis) the emphasis is on controlling the probability data, rather than, as in the claimed apparatus, enhancing unexpectedness.

Considering the above, one of ordinary skill in the art would realize that the cited references are not related in any significant manner to the claimed invention. One of ordinary skill in the art would not see any advantage or reason for combining Bradish with Mathis. Thus, Applicants respectfully submit that the Examiner has not only failed to show that all elements of the claimed invention are known or suggested in the art, the Examiner has also failed to show that one of ordinary skill in the art would have some reason or motivation to put all of the elements together to achieve the claimed invention even if all of the elements were known. Accordingly, a proper *prima facie* case of obviousness has not been established.

As noted above, when one generates probability data using the apparatus of independent claim 76, the data varies every time the trigger signal is generated and is indeterminate.

As evident by all of the above arguments, neither the cited references (Bradish and Mathis) nor any other prior art describe or suggest a probability generating apparatus as is currently claimed in independent claim 76.

Accordingly, Applicants respectfully submit that independent claim 76 is patentable over Bradish in view of Mathis. As claims 77-80 depend on claim 76 these dependent claims necessarily include all the elements of their base claim. Thus, Applicants respectfully submit that the dependent claims are allowable over Bradish in view of Mathis for at least the same reasons.

In light of the foregoing arguments, Applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. §103(a).

Conclusion

In light of the foregoing amendments and remarks this application is now in condition for allowance, and early passage of this case to issue is respectfully requested. If any questions remain regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

No fees are believed to be due at this time. However, please charge any fee required (or credit any overpayment) to the Deposit Account of the undersigned, Account No. 500601 (Docket No. 7380-X04-006).

Respectfully submitted,
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